



Fetomaternal haemorrhage in amniocentesis

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AIM OF THE STUDY

Determine the incidence of fetomaternal hemorrhage (FMH) in amniocentesis, determine the volume of fetal erythrocytes that infiltrate maternal circulation, and identify risk factors, which lead to excessive FMH. Establishing these parameters may enable optimization of recommendations for RhD alloimmunization prophylaxis.

WORKING HYPOTHESIS

A 10 µg dose of IgG anti-D administered intramuscularly should cover 0.5 ml of fetal RhD positive erythrocytes or 1ml of whole blood. During amniocentesis performed before the 20th week of gestation, less than 2.5 ml of fetal erythrocytes enter maternal circulation (5 ml whole blood, sufficient dose of IgG anti-D 50 µg). If the procedure is performed after the 20th week of gestation, FMH does not surpass 5 ml (10 ml whole fetal blood, sufficient dose of IgG anti-D 100 µg). **This also applies to cases where the needle penetrated the placental tissue during the procedure.**

METHODS

In the pilot study, a total of **151** examinations were performed. The amount of fetal erythrocytes which infiltrate maternal circulation during amniocentesis was established by flow cytometry using the BDFACSCanto flow cytometer (Becton Dickonson International).

Laboratory processing: Fetal Cell Count™ kit (Diagnosis of Feto-maternal Transfusion by flow cytometry), IQ Products, IQP-379.

Calculation of the total volume of fetal erythrocytes which infiltrate maternal circulation: Scientific Subcommittee of the Australian and New Zealand Society of Blood Transfusion. Guidelines for laboratory assessment of fetomaternal haemorrhage. 1st ed. Sydney: ANZSBT, 2002: 3-12.

RESULTS

During amniocentesis, fetomaternal hemorrhage (FMH) ≤2.5 ml (5 ml whole blood) was present in **100%** of cases (151/151), the sufficient dose of IgG anti-D was **50 µg**. The control group, in which the needle entered extraplacentally during the procedure (n=120), FMH median 0.2 ml (≤0.01-1.23), FMH 90 perc (0.4 ml). The risk group, in which the needle entered transplacentally (n=31), FMH > 0.4 ml (P 0.7; OR 0.62, 95% CI 0.13-2.93). The age of the pregnant women at the time of the procedure 20-44 years (median 34), gestational age 15-23 weeks (median 17).

CONCLUSION

During amniocentesis, fetomaternal hemorrhage exceeding 5 ml of whole blood does not occur, therefore an IgG anti-D dose of 50 µg is sufficient for RhD alloimmunization prophylaxis in RhD negative women. **Transplacental needle penetration is not a risk factor for excessive FMH.**

